

DJ's SUPER STOP (PWSNO 1090244) SOURCE WATER ASSESSMENT REPORT

December 16, 2002



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR DJ'S SUPER STOP

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like DJ's Super Stop, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for DJ's Super Stop* describes factors used to assess the well's susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for DJ's Super Stop is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system.

The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.

Well Construction. The DJ's Super Stop well provides drinking water for a gas station, convenience store and residence about 3 miles west of Priest River, Idaho. The well was drilled in May 1989 to a depth of 176 feet and produces about 20 gallons per minute. It has a 6-inch steel casing that extends from one foot above ground to 175 feet below. The 20-foot deep surface seal terminates in a clay stratum found from 15 to 166 feet below the surface. The static water level in the well is 135 feet below land surface. No deficiencies in the maintenance of the well head and surface seal were noted during a sanitary inspection of the system in January 1999. The well is located above the 100-year flood plain for the Pend Oreille River. A site inspection in March 2001 determined that the well draws from ground water without surface water influence.

The well casing thickness, 0.25 inches, is slightly less than the minimum 0.28 inch casing thickness required under current Idaho Department of Water Resources construction standards (IDAPA 37.03.09). More importantly, the well is located only 19 feet from the DJ's property line. Since 1979, Rule 35 of IDAPA 37.03.09 has required a minimum 50-foot separation between public wells and property lines. This rule ensures that the well owner has jurisdiction over the sensitive area closest to the well and can control activities that could potentially cause contamination.

Well Site Characteristics. Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zones delineated for your well. Soils in the well recharge zone delineated for DJ's Super Stop are generally moderately to well drained. Well-drained soils provide little protection against migration of contaminants toward the well. At a total depth of 176 feet, the well is relatively shallow, but its most productive level, a layer of gravel between 166 and 176 feet below ground, is overlain by 151 feet of clay that protects the ground water from vertical transport of contaminants.

Potential Contaminant Inventory. State Highway 2 and a rail line cross the 1000-foot buffer zone delineated as the well recharge zone for DJ's Super Stop. Major transportation corridors can be sources of all classes of regulated contaminants. A septic tank and drainfield for DJ's, potential sources of microbial and nitrate contamination, appear to be very close to the 100-foot minimum setback required under *Idaho Rules for Public Drinking Water Systems* (IDAPA 16.01.08). The gas station fuel storage tanks, a potential source of synthetic and volatile organic contaminants, is about 150 feet north of the well. The gravel pit about 700 feet west of the well was not counted as a significant potential contaminant site in the susceptibility analysis of DJ's well.

Water Quality History. DJ's Super Stop, under regulation as a non-community transient public water system, is required to monitor quarterly for total coliform bacteria contamination. Total coliform bacteria were present in two samples in the fall of 1999, but absent in follow up samples. The system failed to monitor during the summer quarters of 1999 and 2001. Annual nitrate samples collected between 1999 and 2001 show concentration ranging between 0.02 and 0.189 mg/l. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Susceptibility to Contamination. An analysis of the DJ's Super Stop well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants. 4 of the 7 points marked against the well in the final susceptibility scores relate to risk factors associated with local geology. The ground water susceptibility worksheet for your well is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For DJ's Super Stop drinking water protection activities should focus on maintaining and operating the well in full compliance with *Idaho Rules for Public Drinking Water Systems*. The 1999 Sanitary Survey called for the following:

- Finding exact locations of sewage system components to see whether required setbacks (100 feet for septic tanks and drainfields, 50 feet for sewer lines) are being met.
- Purchasing or leasing enough land around the well to obtain control over a minimum 50-foot radius well lot.
- Cleaning and securing the pump house.
- Installing pump to waste appurtenances, a sample tap and flow meter on the discharge line from the well.

There are a number of voluntary measures water systems can institute to protect their drinking water source. Every system should have an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website (www.state.id.us/deq/water/water1.htm) to guide systems through the emergency planning process. Adhering to a written maintenance and testing schedule ensures performance of necessary tasks in a timely manner.

It will be important to form partnerships with neighbors to regulate activities that can degrade ground water quality. The gravel pit in the well recharge zone should be monitored periodically since illegal dumping could be a source of contamination. It might be helpful for DJ's to investigate a ground water protection program like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities.

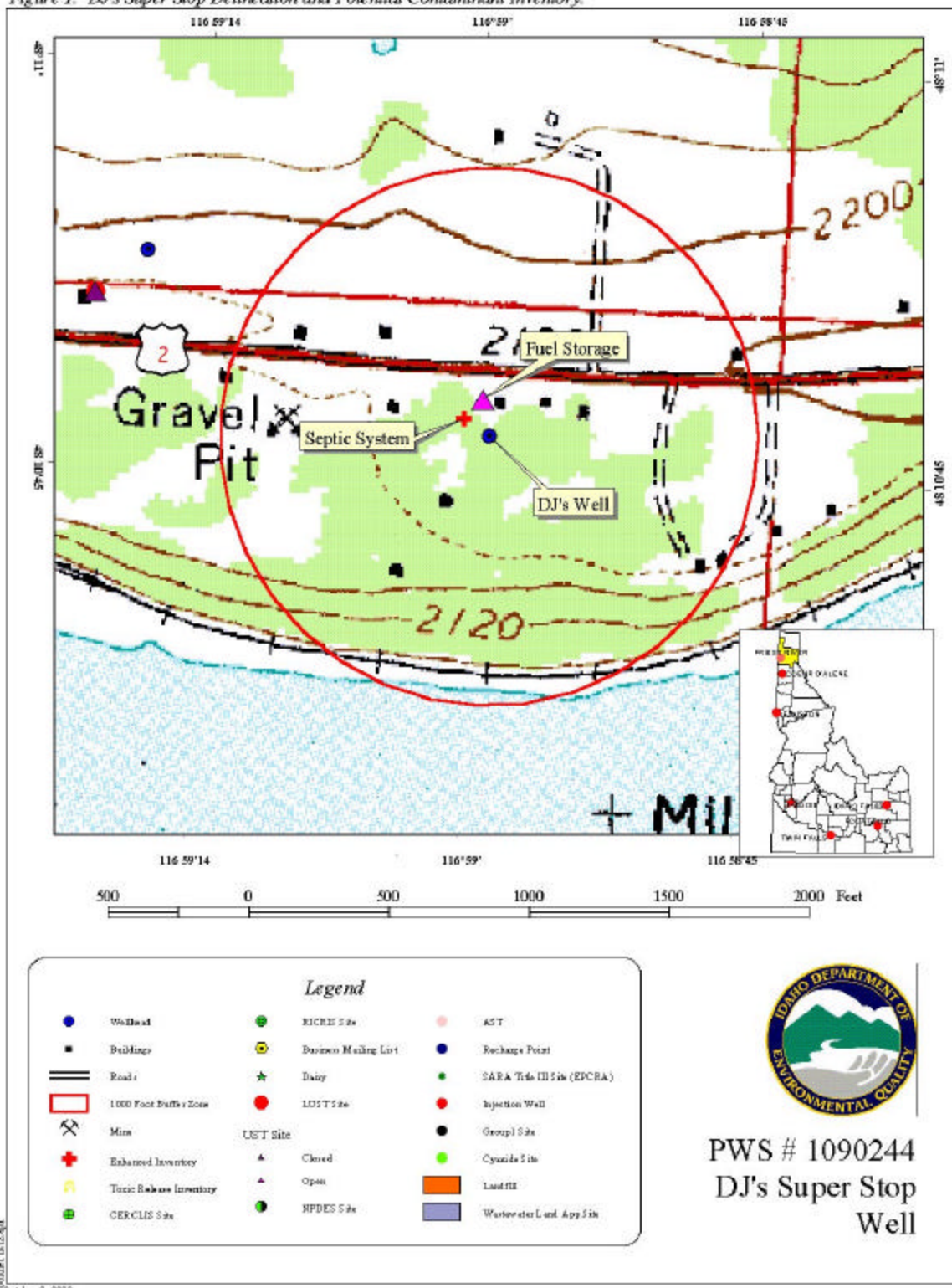
Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and for help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: <http://www.deq.state.id.us/water/water1.htm>

Figure 1. DJ's Super Stop Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name :

D JS SUPER STOP

Well # :

WELL #1

Public Water System Number :

1090244

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1. System Construction		SCORE			
Drill Date	5/30/89				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 1999				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to or through low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		2			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	YES	0			
Total Hydrologic Score		3			
3. Potential Contaminant / Land Use -		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use	COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score -		2	2	2	2
Potential Contaminant / Land Use - 1000-FOOT RADIUS					
Contaminant sources present (Number of Sources)	YES. Highway, Railroad, Gas Station, Septic System	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or Microbials	YES	2	2	2	
4 Points Maximum		2	2	2	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Agricultural Land Use	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-Foot Radius		6	6	6	4
Cumulative Potential Contaminant / Land Use Score		8	8	8	6
4. Final Susceptibility Source Score		7	7	7	7
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate
Automatically ranked highly susceptible due to presence of septic tank within 100 feet of well.					

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.